Academic Program Review

ACADEMIC YEAR	2013-2014	☐ Basic Skills ☒ Transfer ☐ Career Technical Education (CTE)
PROGRAM	Computer Science	
DEPARTMENT	Science, Math and Engineering	
DIVISION	Health and Science	
SUBMITTER	Rick Castrapel	

I. INSTITUTIONAL GOALS

INSTITUTIONAL GOAL **1**	**INSTITUTIONAL MISSION AND EFFECTIVENESS** – The College will maintain programs and services that focus on the mission of the College supported by data-driven assessments to measure student learning and student success.
INSTITUTIONAL GOAL **2**	**STUDENT LEARNING PROGRAMS AND SERVICES** – The College will maintain instructional programs and services which support student success and the attainment of student educational goals.
INSTITUTIONAL GOAL **3**	**RESOURCES** – The College will develop and manage human, technological, physical, and financial resources to effectively support the College mission and the campus learning environment.
INSTITUTIONAL GOAL **4**	**LEADERSHIP AND GOVERNANCE** – The Board of Trustees and the Superintendent/President will establish policies that assure the quality, integrity, and effectiveness of student learning programs and services, and the financial stability of the institution.

II. PROGRAM GOALS

A. PAST – EVALUATION OF PREVIOUS CYCLE OBJECTIVES/PROGRAM GOALS (SET IN PREVIOUS YEAR)

List your previous objectives/goals and associated Institutional Goals. All program goals must address at least one of the institutional goals.

PAST PROGRAM GOALS (Describe past program goals.)	INSTITUTIONAL GOAL(S) (Check all that apply.)

1	PAST PROGRAM GOAL #1	INSTITUTIONAL GOAL(S)
	Identify Program Goal from Last Program Review: Our objective in the next several years is to continue to grow and stabilize the program. We will measure this in terms of enrollment, success and retention, and FTES/FTEF ratios. SLO data, as it comes in, will be incorporated in the assessment of the curriculum and its' effectiveness.	☒ 1 ☒ 2 ☒ 3 ☒ 4
	☐ Met ☒ Partially Met ☐ Not Met **Provide detail on any improvements/effectiveness and detail status on those not fully met:** The Computer Science program is showing signs of healthy growth to stability. This semester (Sp'14), for the first time, an advanced class (CS230) had enrollment exceeding jeopardy list. CS220 needs a prerequisite of Math 91 because concepts are used in the class, and students without the math background struggle to succeed.	

2	PAST PROGRAM GOAL #2	INSTITUTIONAL GOAL(S)
	Identify Program Goal from Last Program Review: Modernization of classroom/lab facilities.	☒ 1 ☒ 2 ☒ 3 ☒ 4
	☒ Met ☐ Partially Met ☐ Not Met **Provide detail on any improvements/effectiveness and detail status on those not fully met:** This goal will be met when the program moves to the new 3100 building in Fall'15.	

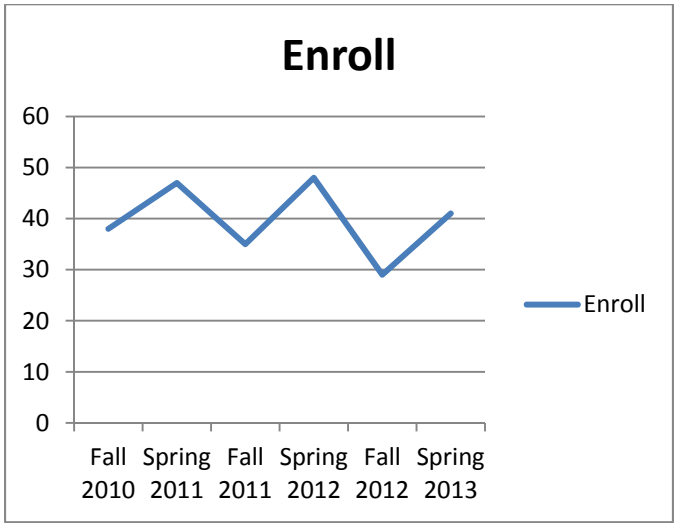
3	PAST PROGRAM GOAL #3	INSTITUTIONAL GOAL(S)
	Identify Program Goal from Last Program Review:	☐ 1 ☐ 2 ☐ 3 ☐ 4
	☐ Met ☐ Partially Met ☐ Not Met **Provide detail on any improvements/effectiveness and detail status on those not fully met:**	

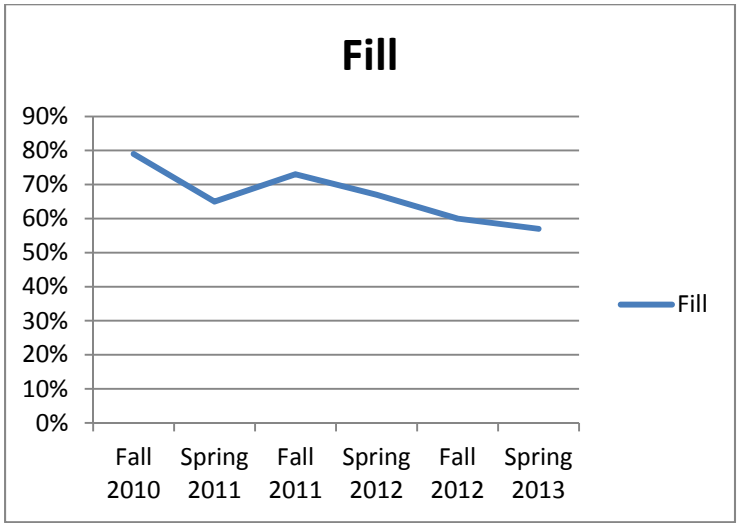
Comments:

B. PRESENT – DATA ANALYSIS AND PROGRAM HEALTH

1. Summarize and analyze all disaggregated data by day, evening, gender, ethnicity, and distance education regarding enrollments, fill rates, productivity, completion, success, retention, persistence, and transfer (complete a, b, & c). ***Attach graphs or trend data***.

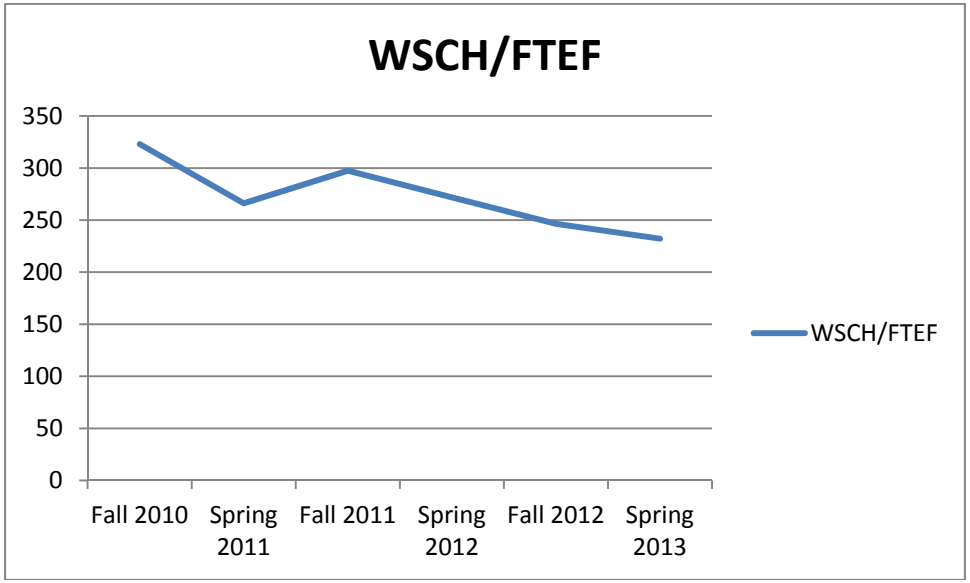
   a. Discuss and chart the trends in enrollment and fill rate for each program by day and evening at the program level.





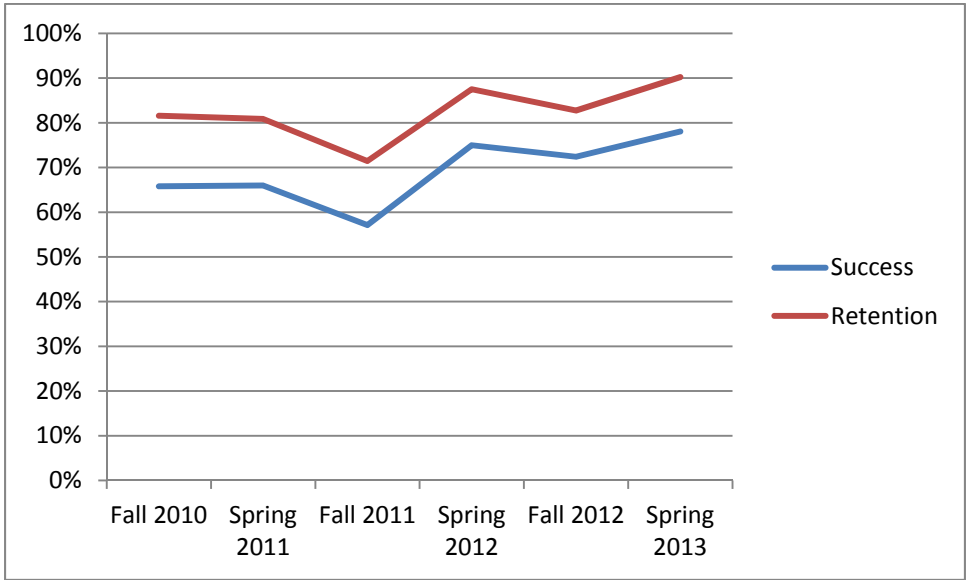
Enrollment is stable with fluctuations that can be attributable to random changes. I don't understand why the fill rate chart is different. The class caps haven't changed. These two charts should be the same.

   b. What are the trends in productivity? (WSCH/FTEF) The goal is 525 as per state guidelines. A low number means that we are below target levels for productivity. For example, in a small class that has a mandated cap of 15 students, the fill rate may be 100% but the productivity number (WSCH/FTEF) will be very low. A class with a cap of 40 students with a 100% fill rate will have a productivity number close to or above 525.



The productivity number is expected because the program is still relatively new and the class cap is 24, due to the limits of the classroom/lab. I have requested class quotas be raised to 30 for next Fall'15 as the new classroom/lab will accommodate more.

c. Discuss and chart the success and retention rates by day, evening (extended day), and online classes in each program and identify gaps.



The Computer Science program tends to draw high-caliber, motivated students. The success and retention levels reflect that.

d. Discuss and chart the success and retention rates in each program and identify gaps for five ethnic groups. (African-American, White, all Hispanics, Other, Unknown).

The numbers are too small, and too dominated by one ethnic group (all Hispanics) to have any meaning.

e. Discuss the trends in the number of degrees or certificates awarded, if applicable. (You may be able to expand more about this in B.3 below.)

From Fall 2010 to Spring 2013, 8 AS degrees in Computer Science have been awarded. The numbers are increasing, but still reflect the programs origins as a Title V 2+2 transfer program, rather than an AS program.

f. What program changes, if any, will you recommend that you expect would have a positive effect on your students in your program, if applicable?

CS 220 needs to have a prerequisite of Math 91 to help assure that students are prepared for a rigorous programming course.

A Data Structures course needs to be implemented to conform to the TMC for Computer Science.

The A.S. degree requirements need to be modified to conform to the TMC for Computer Science.

2. Summarize revisions, additions, deletions, or alternate delivery methods to courses and/or program based on the last program review.

   None.

3. Evaluate the program's viability by addressing program completion, size (FTES), projections (growing/stable/declining), and quality of outcomes. For CTE programs, also include labor market projections, placement, and performance on external testing/exams (i.e. ASE, NABCEP) and industry-recognized credentials, placement, and performance on external testing or exams (NCLEX, ASC, NAP).

   The Computer Science program continues to grow and mature. Demand for Computer Science majors is expected to grow in the Imperial Valley as alternative energy industry demands more engineers of all kinds. The First Solar and other coming endowments will help fuel demand for the program by providing scholarships and internships.

C. FUTURE – LIST OF "SMART" (SPECIFIC MEASURABLE ATTAINABLE RELEVANT TIME-LIMITED) PROGRAM OBJECTIVES FOR NEXT ACADEMIC YEAR TO ADDRESS PROGRAM IMPROVEMENT, GROWTH, OR UNMET NEEDS/GOALS. ALL PROGRAM GOALS MUST ADDRESS AT LEAST ONE OF THE INSTITUTIONAL GOALS.

FUTURE PROGRAM GOALS (Describe future program goals. List in order of budget priority.)	INSTITUTIONAL GOAL(S) (Check all that apply.)

1	FUTURE PROGRAM GOAL #1 Budget Priority #1	INSTITUTIONAL GOAL(S)
Identify Goal: Provide software for the new CS lab.		☒ 1 ☒ 2 ☒ 3 ☒ 4
Objective: Increase success of CS 280.		
Task(s): Obtain 30 software licenses for PIC Basic Pro.		
Timeline: Fall'14		

EXPENSE TYPE	FUNDING TYPE		RESOURCE PLAN (Check all that apply.)	BUDGET REQUEST
☒ One-Time ☐ Recurring	☐ Categorical Specify:	☒ General Fund	☐ Facilities ☐ Marketing ☒ Technology ☐ Professional Development ☐ Staffing	$1200

2	FUTURE PROGRAM GOAL #2 Budget Priority #2	INSTITUTIONAL GOAL(S)
Identify Goal: Conform to Transfer Model Curriculum for Computer Science		☒ 1 ☒ 2 ☒ 3 ☒ 4
Objective: Improve transferability of IVC Computer Science students		
Task(s): 1) Create a Data Structures course 2) Adjust requirements for A.S. degree in Computer Science		
Timeline: Fall'15		

EXPENSE TYPE	FUNDING TYPE		RESOURCE PLAN (Check all that apply.)	BUDGET REQUEST
☒ One-Time ☐ Recurring	☐ Categorical Specify:	☒ General Fund	☐ Facilities ☐ Marketing ☐ Technology ☐ Professional Development ☒ Staffing	$2160

3	FUTURE PROGRAM GOAL #3 Budget Priority #3	INSTITUTIONAL GOAL(S)
Identify Goal:		☐ 1 ☐ 2 ☐ 3 ☐ 4
Objective:		
Task(s):		
Timeline:		

EXPENSE TYPE	FUNDING TYPE		RESOURCE PLAN (Check all that apply.)	BUDGET REQUEST
☐ One-Time ☐ Recurring	☐ Categorical Specify:	☐ General Fund	☐ Facilities ☐ Marketing ☐ Technology ☐ Professional Development ☐ Staffing	$_____

TOTAL BUDGET REQUEST	$_____

1. How will your enhanced budget request improve student success?

Comments:

III. INSTITUTIONAL STUDENT LEARNING OUTCOMES (ISLOs)

ISLO 1	COMMUNICATION SKILLS
ISLO 2	CRITICAL THINKING SKILLS
ISLO 3	PERSONAL RESPONSIBILITY
ISLO 4	INFORMATION LITERACY
ISLO 5	GLOBAL AWARENESS

IV. PROGRAM LEARNING OUTCOMES (PLOs)

PROGRAM LEARNING OUTCOMES (Describe learning outcomes.)	**ISLO(S)** [Link PLO to appropriate ISLO(s).]

PLO 1	**PROGRAM LEARNING OUTCOME #1**	**ISLO(S)**
	Identify Program Outcome: Manage a programming project from start to finish, both individually and in teams.	☒ ISLO 1 ☒ ISLO 2

	a. **Measurable Outcome Summary:** How did you assess Outcome #1? A CS 230 class participated and was evaluated on completion of four programming projects. b. Provide a summary of results: A total of 13 students were assessed. 11 of the students completed all projects. The remaining 2 students completed 3 of the 4 projects. How will your program use this information to improve student learning? If curriculum changes will be made (i.e. course outline, course description, course activities), please explain. The results of PLO1 showed that the majority of the students had met course competencies. No need for changes at this time.	☒ ISLO 3 ☒ ISLO 4 ☐ ISLO 5
	☒ Met ☐ Partially Met ☐ Not Met **Provide detail on any improvements/effectiveness and detail status on those not fully met:** No timeline for Program Modification were discussed at this time.	

PLO 2	PROGRAM LEARNING OUTCOME #2	ISLO(S)
	Identify Program Outcome: Think critically and utilize qualitative and quantitative reasoning skills to design and implement an effective problem solution.	☒ ISLO 1 ☒ ISLO 2 ☒ ISLO 3 ☒ ISLO 4 ☐ ISLO 5
	Measurable Outcome Summary: a. **:** How did you assess Outcome # 2? This PLO was assessed by having a CS 280 class respond to nine homework questions about architectural issues with real-world computers. b. Provide a summary of results: 5 of the 6 students gave correct and appropriate responses to the questions.	
	☒ Met ☐ Partially Met ☐ Not Met **Provide detail on any improvements/effectiveness and detail status on those not fully met:** The results of PLO 2 showed that the majority of the students had met course competencies. No need for changes at this time.	

PLO 3	PROGRAM LEARNING OUTCOME #3	ISLO(S)
	Identify Program Outcome: Apply algorithmic and symbolic thinking to the problem-solving process.	☒ ISLO 1 ☒ ISLO 2 ☒ ISLO 3 ☒ ISLO 4 ☐ ISLO 5
	Measurable Outcome Summary a. How did you assess Outcome # 3? One CS 280 class of six students was assigned to implement Butchers Algorithm for calculating the date of Easter for any year in x86 assembly language. b. Provide a summary of results: 5 of 6 students provided a correct program.	

	☒ Met ☐ Partially Met ☐ Not Met **Provide detail on any improvements/effectiveness and detail status on those not fully met:** No timeline for Program Modification were discussed at this time.	

***** ATTACH PLO/SLO GRID *****

Course	# Credits	# SLOs Identified	SLOs in CurricUNET	F'11	Sp'12	F'12	Sp'13	F'13	Sp'14
CS 170	3	3	Yes		1		2,3		1
CS 220	4	4	Yes		1	2	3,4	1,2 (RC)	
CS 230	4	4	Yes		1		2,3,4		
CS 280	4	4	Yes	1		2		1 (RC)	

			Which PLO was assessed?				
Program	Lead	# PLOs	Spring 2012	Fall 2012	Spring 2013	Fall 2013	Spring 2014
CS	Castrapel	3			1,2,3		